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ABSTRACT

Subjects dealt with in this report include: (1) team teachers dealing with complex materials; (2) career education programs that expose students to the world of work; (3) research and development outcomes relating to publications on drugs, cooking, cognitive development, early education programs, consumer education, and math teaching; (4) special happenings and training programs in educational research and development; resources for increasing functional literacy. (DS)

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Teachers Team To Cope With Complex Materials

Mary Saily

"Team teaching is one innovation of the 1960s that has persisted into the '70s," claims Elizabeth Cohen, a researcher at the Center for Educational Research at Stanford.

She should know. Cohen and her colleagues have been studying teaming in elementary schools since 1968.

"What we've come to see is that two forces continue to move teachers toward collaborative relationships—the growing complexity of instructional methods and materials, and the open-space architecture of some schools," she says. "In other words, we're finding that technological conditions have encouraged and will continue to encourage the development of teaming."

An unpopular view

This finding runs contrary to common opinion. Many educators and citizens alike believe teaming is dying out.

Mary Saily is editor of *Educational R&D Report*

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"When I tell people I continue to be deeply involved in studying teacher teams, the typical response is, 'Didn't you know? Teams are passe,' " Cohen explained when interviewed recently.

"This belief persists because individual teams are, indeed, quite unstable. The problem is," she continues, "teachers are usually not provided with the training necessary to cope effectively with teaming. And the administrative support for these arrangements is generally inadequate. So the price of joint activity often becomes too high and the team drops down to a lower level of interdependence or dissolves altogether."

"We're finding that technological conditions have encouraged the development of teaming"

But in a recent study, Cohen and her associates confirmed a hunch: new collaborative arrangements spring up to replace the ones that have disappeared. And a major reason for this phenomenon is the growing complexity of instruction.

Design of the study

The two-year study involved 103 randomly selected elementary schools in the San Francisco Bay Area. "We don't assume that educational systems in the Bay Area are representative of the rest of the country," says Cohen, "but the selection process did yield a diverse set of schools."

Organizationally, schools ranged from self-contained classroom situations with relatively isolated, independent teachers, to open-space facilities with highly interdependent teaching teams. Instructionally, schools varied from those in which entire classes were using identical materials, to those in which students followed individually tailored learning programs. The environmental settings included urban locations with high proportions of low-income, minority students, suburban settings with predominantly white students from upper-income brackets, and some rural areas.

The major source of data on the organizational and instructional patterns within schools was a combination questionnaire-interview with the principal at each school. A similar strategy was employed to obtain information on district structure and policy from the superintendent in each district. In addition, data were gathered from 49 teachers in grades 1-3 in a subsample of 16 schools.

"Because we know that teaching patterns and instructional materials vary by subject area," Cohen explains, "we focused the questions on the teaching of reading in grades 1-3. It's also important to note that we gathered data from all three sources at both the beginning and end of the two-year period."

A sociological perspective

"We wanted to find out why this particular innovation—teaming—continues to be tried out despite all the problems. And we hypothesized that it has something to do with the nature of the teaching task."

This hypothesis comes out of a sociological study of organizations. Cohen, in fact, is professor of sociology and education at Stanford. And in 1966 she started what's known as the "sociology of education training program."

"We wanted to find out why this particular innovation—teaming—continues to be tried out despite all the problems"

"We take people with experience in education and train them in applied research skills," she explains. "Our students learn a wide array of methodologies. The strategy is to attack the same problem in different ways."

But Cohen is the first to admit that her research has been directly affected by her students. "My students are my co-workers," she says, "and they are highly experienced classroom teachers. That's why I've gotten so close to the classroom in my research."

Also, Cohen is part of an interdisciplinary team at the Center for Educational Research, part of Stanford's School of Education. Her colleagues on the team responsible for the longitudinal study were John Meyer and W. Richard Scott, both professors in the Department of Sociology, and Terrence Deal, now professor in the School of Education at Harvard.

So it's not surprising that Cohen and her associates designed

Elizabeth Cohen

a study to take a look at the relationship between the complexity of instruction and the collaborative arrangements among teachers.

"Other organizational studies have shown a relationship between the organization of the staff and the nature of the task, or as sociologists call it, the 'technology' of the organization. From a sociological point of view, the isolated teacher in the traditional self-contained classroom would not be able to handle tasks of any complexity," Cohen says.

She goes on to point out that traditional classroom instruction is most appropriate for moving a whole class, or two or three ability groups, through the same materials at the same pace. Yet many of the instructional innovations of the past decade involve the use of more differentiated curriculum materials and more diverse student groupings.

"So from a sociological perspective," asserts Cohen, "we would expect to find increasingly complex instructional or staffing arrangements to deal with this growing complexity of materials and methods."

What the study examined

The study took a look at the complexity of classroom technology and structure.

The researchers measured the complexity of technology, or instruction, by combining data on three items: the number of different sets of complex instructional materials used in the reading program; the extent to which students were grouped in order to use differing materials; and the extent to which teachers could choose among differing materials in assigning work to students. "Thus our indicator of technological complexity in schools was differentiation of teaching materials and students," says Cohen.

To measure the complexity of organizational structure, the study focused on the development of collaborative arrangements among teachers. "Since a wide variety of arrangements are labeled team teaching, we attempted to determine which of three types of collaboration were present in each school: weekly planning meetings among teachers, joint teaching of students, and collective assumption of responsibility for students," Cohen explains.

In addition, the study looked at the proportion of teachers in open-space areas within each school because previous research had indicated that open-space architecture helps promote collaborative teaching arrangements. Open-space also makes instructional activities potentially more complex.

The study also examined a number of other variables, including the proportion of minority students, the proportion of students coming from average or below-average economic circumstances, the total current expenditure per student for each school, the leadership of the principal, school size, district size, and district resources.

"From a sociological point of view, the isolated teacher would not be able to handle tasks of any complexity"

Some expected and unexpected findings

"We found that the complexity of instruction does act as a lever on the staffing pattern to encourage the formation of collaborative relationships," says Cohen. "In other words, schools that were higher on differentiation of materials and students at the outset of the two-year period were more likely to show an increase in teaming than other schools."

But, surprisingly, the reverse was not true. That is, collaboration among teachers at the beginning of the time period did not produce increased instructional differentiation at the end of two years.

"This finding, as well as the absence of significant relationships between complexity of instruction and teaching arrangements, on the one hand, and a whole host of organizational and environmental variables, on the other hand, is surprising and interesting," Cohen says. In fact, the measures of complexity within the classroom appeared to be impervious to a wide range of factors:

school and district size; per pupil expenditure and state and federal funds; district policies on teaming and principals' encouragement of collaboration; percent of special district personnel; frequency of evaluation of the instructional program; and parent and community involvement in school decisions. "In other words," states Cohen, "the relationships we observed between technology and structure occurred close to the classroom level."

The researchers did find that open-space architecture increased both the levels of teaming and complexity of instruction

However, the researchers did find that open-space architecture consistently increased both the levels of teaming and complexity of instruction. "Apparently, opening up the walls of the classrooms not only forces teachers to work together, but it encourages them to differentiate students into smaller subgroups and to use more varied curriculum materials."

Instability of teaming

Another significant finding is that teams are very unstable. "Although we have some evidence of stability over time in the extent of collaborative arrangements among teachers in schools, the basis for this stability should not be misunderstood," Cohen warns. "Stability in teaming in a particular school did not mean that the same teams were present at the beginning and end of the study."

On the contrary, examination of teaching patterns as revealed by data from the teachers in the subsample of 16 schools shows that in many cases the teams were temporary. And these reports from teachers are supported by data from the principals in the larger sample.

"Because teaming is more complex than traditional staffing patterns, it appears to require more coordination among teachers as well as between teachers in a team and the rest of the school," says Cohen. "And some of our current investigations into the principal's role are showing that when teachers work with each other, the extent to which the principal plays an integrative role becomes an important predictor of staff morale."

But the data show that few principals recognize that teams do not continue to exist without explicit policies and support from the administration. "As a matter of fact," Cohen continues, "in most cases teacher teaming does not appear to be a product of formal organizational planning by the principal and the staff. More than half the team teachers in our sample reported that their team started when a few teachers decided to work together."

Nevertheless, despite the lack of administrative support and inadequate time for communication and coordination, teacher teams continue to spring up in schools.

"This finding—that new teams develop to take the place of teams that have disintegrated—testifies to the power of instructional differentiation and open-space arrangements in encouraging collaboration among teachers," Cohen concludes.

Few principals recognize that teams do not continue to exist without explicit policies and support from the administration

Implications for school practice

These findings have a number of implications for the way schools are organized and how teachers and administrators are trained.

"First," says Cohen, "it's apparent that many current instructional innovations have implications for the way schools are staffed. Furthermore, it's clear that these staffing implications are not understood by the teachers themselves, by school administrators, or by teacher educators. So one task is to create an awareness of this phenomenon."

"Then we must begin to provide the support teachers need to collaborate effectively," she continues. She points out that the data show that no one has helped team members with even the simplest techniques—how to save time by using an agenda, how to develop policies to deal with problems like discipline and evaluation, and how to use temporary leadership to accomplish specific tasks. "Teams need preservice and inservice training on

teaming. They also need regular planning time," Cohen says.

She also indicates that her data reveal that the role of the principal is crucial to the success of collaborative teaching. "Our analysis indicates that coordination and control, as well as principal supportiveness, are much more important as predictors of teacher morale when schools are complex than when they are not," she says

"Teachers have a lot of expertise," concludes Cohen. "But they have no structure for sharing it. I know all the problems of teaming. Nevertheless, when it's done with proper support, teaming is the best low-cost innovation I know to improve complex instruction."

Several publications describe Cohen's research in greater detail:

☐ *Principal Role and Teacher Morale under Varying Organizational Conditions* is available free from Elizabeth Cohen, Center for Educational Research at Stanford, School of Education, Stanford University, Stanford, CA 94305.

☐ "Problems and Prospects of Teaming" by Elizabeth Cohen, published in *Educational Research Quarterly*, is available from ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210, for $1.67 (ED 126081).

☐ "Technology and Structure in the Classroom: A Longitudinal Analysis of the Relation Between Instructional Methods and Teacher Collaboration" appears in the January 1979 issue of the *Sociology of Education*. This paper is authored by Cohen, Terrence Deal, John Meyer, and W. Richard Scott.

Career Education Programs Expose Students to World of Work

David Savage

Ask a high school student what career he or she wants to pursue. Or just think of yourself at 17. Chances are, like most young people, you had no firm idea about what career you might enjoy. Yet you made decisions that affected your future.

That's the situation in which most high school students find themselves—they must make career choices while having little direct knowledge of the world of work.

In response to this dilemma, four regional educational laboratories have developed experience-based career education (EBCE) programs. Today the programs are being used by high school students in all 50 states. And unlike many of their counterparts, these young people are gaining first-hand knowledge of careers.

Some similarities and differences

Although the four programs have common characteristics, they reflect, to some degree, the differing approaches of the laboratories that developed them. The labs are: Appalachia Educational Laboratory (AEL) in Charleston, West Virginia; Far West Laboratory for Educational Research and Development (FWL) in San Francisco; Northwest Regional Educational Laboratory (NWREL) in Portland, Oregon; and Research for Better Schools (RBS) in Philadelphia.

In 1971 these institutions set out to design programs that would blend education and experience, and take the classroom into the community. After a year of planning, each lab began a pilot EBCE project. The test schools ranged from a huge city high school with mostly black students in Philadelphia, to a partly rural and partly suburban school with mostly white students in Tigard, Oregon. Thus each program reflects a peculiar developmental situation.

The programs also differ in other ways. For example, some put more emphasis on academics, while others keep students out in the community for longer periods of time. However, in all cases, the purpose is exploration rather than training. Also, all four EBCE programs differ from traditional work-study in that the work is un-

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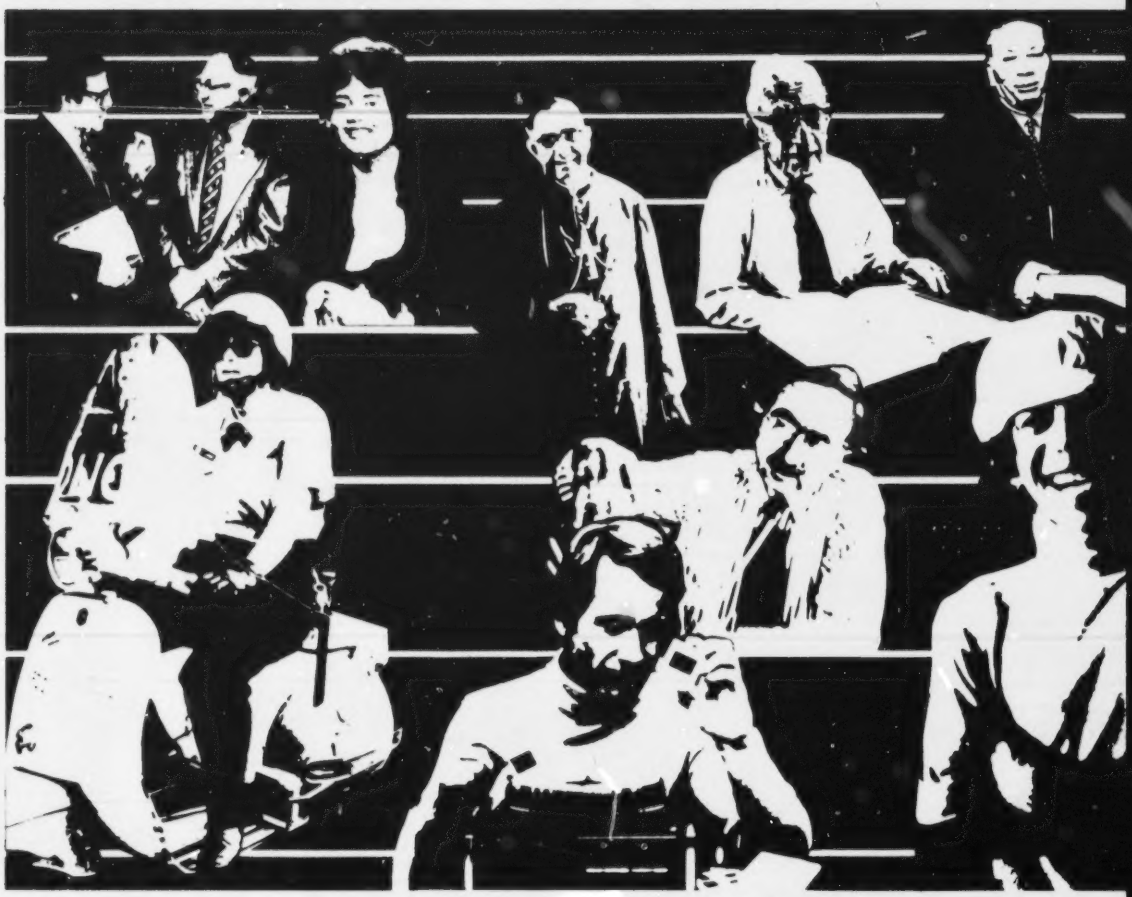


paid and students explore a variety of careers rather than learning about one.

In essence here's how EBCE operates: A student who decides to participate consults with a "learning coordinator" to create an individual program that combines academics with direct exposure to the world of work. The areas for possible exploration are clumped in different ways by the four programs.

RBS model

For example, the RBS model refers to "job clusters" like law and justice, health, banking and finance, or engineering. The student's work experience is then divided into "exploration" and "specialization." In the exploration phase, a student interested in law and justice may spend one day with a professional in the district attorney's office, another day in a police precinct, and a third in a city prison. The intention is to have the student get a feel for each of the jobs. Employers are asked to assign students some actual work, not to simply give them a lecture or a plant tour. After exploring law and justice for nine weeks, the student can go on to explore another area or can specialize in one job.

A specialization means the student works one-on-one with an adult, with the student responsible for completing a specific project. Tom, an eleventh grader in Philadelphia, worked with an architect who was designing a shopping plaza to blend in with one of the city's colonial neighborhoods. Tom designed and built a model of a gasoline station, also in the colonial style, that eventually would sit adjacent to the shopping center.

AEL model

The AEL program identifies "worker trade groups" such as medical, veterinary, and related services; cropping, animal farming, gardening, and related work; costuming, tailoring, and dressmaking; and industrial engineering. Using self-administered

Students get into the community, find out about jobs, and learn about themselves

tests to help determine aptitude and interests, a student chooses one of the worker trade groups. The student then refers to a description of resource people for that group at work sites in the community and selects a person with whom to work. Placements with resource people run from three to thirteen weeks. Students then recycle through the testing sequence to determine whether their interests and values have changed and to plan next steps.

FWL model

The FWL program includes "project planning packages" for five areas: life science, physical science, social science, commerce, and communications and media. Available community resources are classified into those areas, although a particular resource may fall into more than one category. Students then earn academic credit in a particular area by working with a variety of community resource people to complete an individualized project. For example, a student designing a government project might work with a city manager, a campaign manager, and a city reporter. The goal is to expose students to a variety of careers in a given area.

NWREL model

The NWREL model does not categorize the world of work. Instead, individualized programs are designed to intertwine academic and work experience. Students are encouraged to draw from a variety of available career interest inventories to help determine interests and aptitudes. Community work sites are identified based on student interest and availability of resources. Like the RBS model, students' experiences are divided into two levels: exploration, which in this case lasts for two or three days per site; and learning, which can run for three weeks to three months. The purpose is to expose students to a variety of careers at a given site.

Flexibility of use

A common characteristic of all four models is flexibility. Some high schools make it a full-time program for interested students, while others use it as a part-time elective; some limit it to juniors and seniors; some extend it down to the ninth and tenth grades. In some instances, the program is housed in the high school; but in other communities, it is operated from an office or other facility closer to the business area. Also, the models can be adapted to special populations of students. For example, in tiny Grafton, West Virginia, EBCE is being used with gifted and talented children, many of whom are bored by traditional high school courses. In Arlington, Virginia, handicapped students are enrolled in EBCE, giving them the much needed chance to explore careers that meet their interests and abilities. The program has been used in a vocational-technical school in Norman, Oklahoma, at a community college in Fort Dodge, Iowa, and in a job training program under the federally funded CETA (Comprehensive Employment and Training Act) program in Baltimore.

"The program appeals to everyone from a potential dropout to a valedictorian"

"I can't say there is a typical EBCE student," says Jack Sanders, a project staff member at AEL. "The program appeals to everyone from a potential dropout to a valedictorian."

Counselors in some EBCE programs say the student who is bored in the classroom is the first to sign up. However, this may be a very bright student who can't find a challenge in the regular school work or a student who has trouble with the abstractions of academics but is quick to grasp practical and concrete problems. EBCE can help the college-bound student discover whether he or she would really like to be an engineer or a doctor. But equally important, the program can help the student not going to college discover the many interesting, satisfying, and well-paying jobs available without a college degree.

What students learn

But regardless of how EBCE is used, the basics remain the same—students get into the community, find out about jobs, and learn about themselves. They test their own preconceptions and alter many along the way.

Jo Ann, a senior in Tigard, Oregon, talks of her interest in becoming a veterinarian. Why? She likes animals. But after nine weeks of working with a vet, she decided that career wasn't for her. Veterinarians see so many animals in pain that they inevitably become emotionally anesthetized to the discomfort, she says. It becomes just another business. Her feelings about nursing and health care jobs were similar. Later on, Jo Ann worked with a real estate agent. She found this job provides opportunities to meet people and help them make a crucial financial decision. To her, this work is satisfying and rewarding.

Peter is another Tigard senior. His father was an industrial engineer and Peter was good in math, so he assumed he would follow in his father's footsteps. But one of his EBCE projects called for him to work 13 weeks with draftspersons and engineers in a local design shop. Peter discovered that while he was capable of handling any of the assignments, he felt unfulfilled by them. Most of the day was spent alone with paper and pencil. After a series of jobs—working at a TV station, with a computer firm, at a travel agency—he found a career he intends to pursue. It actually surprised him. He's now working with retarded children. Peter says he learned that he really wants to work with people, not with things and numbers. It was a difficult decision, but he plans to get a college degree in special education.

"We did interview about 150 EBCE students, and we didn't find one who was disaffected by what he or she was doing"

Some students make such radical shifts, but others make just minor adjustments in their academic direction. Tom, the budding Philadelphia architect, learned that he needed to buckle down in math if he is to achieve his ambition.

Thus EBCE helps students develop a well-tested set of career values that go far beyond salary and occupational status. Does

the job have enough responsibility and independence, or does it require following rather routine procedures? Is there a chance to move on to new challenges in the same area, or is it a deadend? Does advancement mean moving to a big city? Do I like big offices with a lot of faces and a powerful corporate name, or do I want to be a big cog in a tiny operation? Do I like working in an office, or being out in the community? In a few short months, EBCE students are able to answer a lot of these questions for themselves.

The opportunity to question and expand career expectations can be particularly valuable to high school girls. In spite of cautions about sex bias in job counseling, many young women are still subtly shuttled into a few careers—nursing, teaching, child care, or secretarial work. EBCE can give them a chance to discover other options.

Positive evaluation results

Examples of the positive results of EBCE are supported by evaluation studies of the four projects.

More than 90 percent of the students studied said EBCE gave them more motivation than their school work. They also said it gave them more opportunity to assume responsibility, to work with others, and to learn about things they believe are important for their future. About 50 percent of the graduates went on to college full-time and another 15 percent went part-time. These figures are a bit above average. Further, more than 90 percent of the parents surveyed reported a "positive change" in their son or daughter due to EBCE.

Keith Goldhammer, dean of education at Michigan State University, headed a panel that evaluated the four projects. In a speech soon after, he observed, "Somewhere at sometime someone said, 'I have seen the future, and it works.' I think that is how I felt as I had this opportunity to see the EBCE programs in operation. Can you picture randomly selecting 150 students from any high schools in the country and finding genuine enthusiasm, a feeling of belonging, a feeling that school exists for them, a feeling that they are recognized as human beings and they can do within the schools what is important for them? We did interview about 150 EBCE students, and we didn't find one who was disaffected by what he or she was doing."

Changes in school practice

Like many of the best ideas in education, EBCE is based on common sense. The notion of exposing students to a variety of career possibilities is engagingly simple. But, surprisingly, it's impossible to find anything like EBCE in most schools. Perhaps that's because it does require schools to make some changes in the way they operate.

One difference is that EBCE takes school staff as well as students out of the classroom and into the community. In setting up an EBCE project, a school employee must enlist a variety of work sites in the area. The project director may, for example, speak at meetings of the Chamber of Commerce, the Kiwanis, the Lions Club, and other local groups to interest them in the program. Serving as a contact person with businesses and other community groups is, in fact, a full-time job for the project director at first, and a part-time one thereafter.

Most project directors report little trouble in signing up businesses and other community resources. Often a "front runner" appears—a business person who is enthusiastic about EBCE and will gain the support of others. Many business people are interested in education, if for no other reason than that they hire the graduates of the local high school. Others who have been critical of the school program may be anxious to show they can help improve it. In the overall evaluation of EBCE, more than 90 percent of the business people surveyed said they would recommend participation in EBCE to others.

"I think EBCE is a good alternative for teachers, too," says Hal Stoltz, a teacher who serves as a learning coordinator for the program in Tigard. The teacher becomes a counselor and a friend to the students, a role that many teachers relish.

Cost and availability

In these days of tight budgets, the cost of any new program is a primary consideration. But does EBCE cost much to implement?

"Except for some extra start-up costs, no," says Sanders of AEL. EBCE does not require expensive equipment or facilities. And it doesn't radically change the student-teacher ratio. Thus once the job sites are found and the basic structure of the program is set, the cost is entirely in line with average per-pupil costs.

For the first three years of the pilot projects, the labs worked to refine and improve the programs by talking to students and employers, testing for academic and attitude changes among students, and developing guidance and curriculum materials. Since then, the labs have assumed a new role—that of helping schools use EBCE.

All the labs have printed guidebooks and other materials for project directors, employers, and learning coordinators. And together they have compiled a booklet that compares and contrasts the four EBCE models. In addition, each of the labs provides a variety of technical assistance and training to schools wishing to implement the program. Some of this implementation assistance is funded by the National Institute of Education, which supported the development of the models.

In addition, the U.S. Office of Education joined the effort several years ago by setting aside most of its demonstration money under vocational education—the so-called "Part D" funds—for EBCE. With these resources, an EBCE demonstration project has been established in every state. Also 16 state education departments have added staff members who are specially trained to help school districts start up EBCE.

As further evidence of the growing interest, an EBCE network has been established. The first two meetings drew more than 300 persons. The group is planning to incorporate before its next meeting, set for February in San Antonio, Texas. Also, a newsletter, *EBCE Update*, is published by the Northwest and Far West labs.

For general information about EBCE you can contact Ron Bucknam, Program on Education in the Home, Community, and Work, National Institute of Education, 1200 19th St. NW, Washington, DC 20208.

To find out where the CETA demonstration site is located in your state contact Joyce Cook, Vocational Education Division, U.S. Office of Education, Room 5026, ROB #3, 7th and D Sts. SW, Washington, DC 20202.

A brochure that compares and contrasts the four models, as well as information about each program, can be obtained from any of the project directors listed to the left.

Harold Henderson
Appalachia Educational Laboratory
P.O. Box 1348
Charleston, WV 25323

George Rusteika
Far West Laboratory for Educational Research and Development
1855 Folsom St.
San Francisco, CA 94103

Rex Hagans
Northwest Regional Educational Laboratory
Lindsay Bldg.
710 S.W. Second Ave.
Portland, OR 97204

Michaelita Quinn
Research for Better Schools
1700 Market St.
Suite 1700
Philadelphia, PA 19103

Clearinghouse Offers Career Education Resources

The ERIC Clearinghouse for Adult, Career, and Vocational Education makes available a variety of resources related to career education. In fact, until recently this facility was known as the ERIC Clearinghouse for Career Education. It is still located at the National Center for Research in Vocational Education at Ohio State University.

For more information write Marla Peterson, director, ERIC Clearinghouse for Adult, Career, and Vocational Education, 1960 Kenny Rd., Columbus, OH 43210.

R&D Outcomes

Booklets Answer Kids' Questions About Drugs

Research for Better Schools is completing the second of two booklets for elementary school children on drug abuse.

The booklets, created for the National Institute on Drug Abuse, present a no-holds-barred discussion about drugs—what they are, how they work, why people take them, and what effects they have. Alcohol, caffeine, tobacco, marijuana, phencyclidine (PCP), narcotics, depressants, stimulants, and inhalents are all closely examined.

The booklets also contain special life skills sections with activities and information on learning about oneself, learning about control and choice of activities, making judgments, and thinking about what lies ahead in the next several years.

Both booklets are designed for young people faced with making decisions about drugs. The first, *This Side Up,* is being sent free to children requesting information on drugs from the National Institute on Drug Abuse, Office of Communications and Public Affairs, 5600 Fishers Lane, Rockville, MD 20857. The second booklet will soon be available from the same source.

Education Cookbook Brings Kids, Parents Together

The youngster who asks, "What should I do now?" may find a new set of experiences waiting in the kitchen if *The Gathering Together Family Cookbook/Calendar* is hanging nearby.

The cookbook/calendar, recently completed by Research for Better Schools, contains 60 easy and nutritious recipes, five for each month. Appropriate for kids of all ages, it promotes nutrition and good health while bringing parents and children together in an activity that is fun, rewarding, and instructive.

In addition to recipes, the cookbook/calendar includes a number of activities for both parents and children. For instance, while waiting for something to bake, boil, or brown, youngsters can amuse themselves by coloring pages of food character cartoons—Funny Fruits, Vital Veggies, Groupy Grains, Mighty Meats, Nutty Nuts, and Beautiful Breads. The publication also includes sections on New Words to Learn, Tools of the Trade, Safety Tips, and Getting Ready to Cook.

For more information about cost and availability, contact Educational Services Division, Research for Better Schools, Inc., 1700 Market St., Suite 1700, Philadelphia, PA 19103.

Book Offers New Theory On Cognitive Development

A theory on cognitive development during the school years is presented in a new book by two researchers at the Wisconsin R&D Center for Individualized Schooling. *Cognitive Development in Children and Youth: A Longitudinal Study,* by Herbert Klausmeier and Patricia Allen, represents more than ten years of studies in concept learning and cognitive development by Klausmeier and his associates.

It presents, for the first time, the findings and conclusions of a comprehensive longitudinal study. According to the authors, this study provides the only available empirically based description of cognitive development of American youth, grades 1-12.

This study provides the only available empirically based description of cognitive development in American youth

Another feature of the book is that it deals with four highly significant products of education—concepts, principles, structures of knowledge, and problem-solving skills. These products make it possible for people to interpret the physical and social world as well as to acquire knowledge on their own. Furthermore, the book combines research findings on cognitive learning and cognitive development with the results of experiments carried out in school settings. Instruction in these settings was designed to nurture the cognitive development of students. The book then goes on to explain how this experimental instructional design can be applied

to developing materials as well as to carrying out instruction in the classroom.

The book is intended primarily for individuals in the behavioral sciences and the helping professions who are interested in the cognitive development of children. It can also be used as a text in courses on cognitive learning and development and as supplementary material in courses on other areas of learning and development.

The book, which is being published by Academic Press, will be available through dealers in early 1979.

Early Education Program Develops Academic, Social Skills

PEP—short for Primary Education Program—is an individualized program for children ages 3-6. The program teaches basic academic skills and also fosters the development of social skills.

Two structured curricula are designed to teach basic skills and concepts in mathematics, logical thinking, and communication: the Quantification Skills Curriculum and the Classification and Communication Skills Curriculum. PEP also includes a less-structured curriculum, the Exploratory Learning Curriculum, that fosters social development, self-direction, and self-management. The basic skills materials include tests to diagnose children's competencies and needs, prescriptive activities to teach specific skills, and games to reinforce the skills. The exploratory curriculum allows children to choose their own activities in math, social science, art, music, or drama and to carry them out alone or with classmates.

Teachers report that the program is superior to traditional preschool and kindergarten programs they have used

To help teachers use the materials, a classroom management system is provided. This part of the program allows students to schedule their own activities—both those the teacher prescribes and those the students choose for themselves—while maintaining order and a productive flow of activities and materials in the classroom.

PEP has been used successfully in more than 100 classrooms across the United States. Teachers report that the program is superior to traditional preschool and kindergarten programs they have used. And research on PEP's effects on children has shown that the program has a positive impact on their achievement.

An introductory guide describes the philosophical and theoretical framework of PEP, and provides detailed information on how to use the program. Teacher manuals for the basic skills curricula and for the exploratory curriculum are currently available. By next fall, a teacher manual for the management system and kits of manipulative materials are also expected to be available.

PEP was developed at the Learning Research and Development Center, University of Pittsburgh, under the direction of Margaret Wang and Lauren Resnick. Development was funded by the Ford Foundation, the General Learning Corporation, the National Institute of Education, and the U.S. Office of Education.

For more information write the publisher, Mafex Associates, Inc., 90 Cherry St., Johnstown, PA 15902.

Monographs Surface Consumer Education Issues

A set of three monographs on consumer education is available from the National Assocation of State Boards of Education. The set includes fifteen articles by authors who represent diverse fields including education, economics, and consumer affairs. The monographs were produced as part of a project funded by the U.S. Office of Education.

The first monograph, entitled *Program Content,* presents eight viewpoints of what should be taught in the schools in order to help students become aware consumers and responsible participants in a free enterprise economy.

Program Design examines ways of incorporating consumer-related topics into the curriculum. A series of articles describes the advantages and disadvantages of integrating such topics into basic subject matter, of creating a self-contained curriculum unit, or of designing a separate course to cover economics, personal business, and consumer awareness.

The final book in the set, *Topics and Issues,* covers a variety of subjects including the need for responsive consumer attitudes toward human services such as education, health care, and legal aid; the impact of energy scarcity on the American consumer; and skills and knowledge that will very likely be needed for economic survival in the next decade.

The monograph set, entitled *Perspectives on Consumer Education*, is available for $7.50 from the National Association of State Boards of Education, Hall of the States, Room 526, 444 North Capitol St. NW, Washington, DC 20001.

Publication Features Research on Math Teaching

Research on teaching mathematics in the elementary grades is the focus of a new publication documenting a conference sponsored by the Institute for Research on Teaching (IRT) and the National Institute of Education. The meeting brought together mathematics educators, researchers, and teachers to identify the current status of research on mathematics instruction and suggest future goals and directions for this topic.

Proceedings of the Research on Teaching Mathematics Conference includes chapters on four research topics: environment or instructional setting (Max Bell, University of Chicago); curricular goals (Robert Davis, University of Illinois); the elementary school learner (Jeremy Kilpatrick, University of Georgia); and implications for teachers and teacher educators (John LeBlanc, Indiana University). The publication also contains an overview, a conference summary, formal reactions to the presentations, and samples of conference discussions.

The publication, IRT Conference Series No. 3, is available for $8.25 (check or money order payable to Michigan State University) from IRT Publications, 252 Erickson, MSU, East Lansing, MI 48824.

R&D Happenings

Dissemination Forum Results in Publications

The 1978 Dissemination Forum brought together more than 1,000 people who are involved in federally sponsored educational dissemination efforts. All 50 states as well as 3 U.S. territories were represented at the meeting which was held in Arlington, Virginia, last summer. A variety of materials from the Forum is now or will shortly be available.

The purposes of the Forum were to share information, ideas, and expertise; to identify better methods of communication, cooperation, and coordination; to discuss and prepare position statements on current issues; and to plan future activities.

The sessions were organized around five critical aspects of dissemination: organizing dissemination activities; identifying client audiences and needs; developing and using resource banks and centers; linking resources to educators; and documenting and assessing the impact of dissemination activities. Materials from some of these sessions will soon be available on microfiche. Some preprinted materials are also being identified, with places where they can be ordered. The purpose is to make this information available to individuals not able to attend the sessions. To find out how to order these materials contact the National Institute for Community Development (NICD), 1815 N. Lynn St., Suite 1000, Arlington, VA 22209.

The 1978 Dissemination Forum brought together more than 1,000 people involved in educational dissemination

In addition, three directories that were provided to registrants of the Forum are now generally available: *Databases and Clearinghouses; Dissemination Networks;* and *Private Organizations and Associations*. The package of three directories can be ordered from NICD for $10.

Also soon to be available is an overall report of the Forum. Six participant observers were engaged by the Forum Steering Committee to identify significant events and issues. Their summaries, as well as observations from the Steering Committee members, have been woven into a short, pithy report that should be of interest to anyone engaged in educational dissemination. Copies will automatically be mailed to individuals registered at the Forum. Others can order a free copy from NICD.

In addition to the sessions organized around the five critical areas listed above, several general Forum sessions were held. During one such session, individuals met by state to assess the status of their state's dissemination activities, and to then develop "State Profiles" to describe the projects and programs. These profiles are being assembled into a publication that will be available in early 1979. For information about availability and cost contact Paul Hood, Far West Laboratory for Educational Research and Development, 1855 Folsom St., San Francisco, CA 94103.

The 1978 Dissemination Forum was sponsored by the Office of the Assistant Secretary for Education (HEW), the National Institute of Education, and the Office of Education. Virginia Cutter, director of the Division of Dissemination of the Texas Education Agency, and Jerry Fletcher, senior policy analyst of the Office of the Assistant Secretary for Education, co-chaired the meeting.

Storytelling Sparks Children's Enthusiasm

Classics heroes and monsters are paying a visit to elementary school children in the St. Louis and Clayton, Missouri, School Districts.

These characters appear in myths and tales that are part of "Storytelling: Classics of the Oral Tradition," a project of CEMREL, the St. Louis-based educational laboratory.

The stories are told to children who then verbally create their own versions while an adult or another student records them. Later the children present their stories to each other, and eventually, they put together books of their collected tales.

"The project is a good one, I think, because it addresses important human issues and because it works," comments Emily Thach, project director. "It focuses upon age-old stories from the oral tradition that deal with the ultimate human issues of what makes a person heroic, what values and behavior give meaning to life, and how the world is ordered."

"The Greeks, Norse, Africans, and British answer these questions differently. The project is designed to teach that asking the questions themselves is important," she says.

In addition, the project seeks to strengthen the children's skills at self-expression in the context of hearing and creating good stories and to instill enthusiasm for several important bodies of literature.

"The project seems to work because the children take interest in the adventures of heroes and monsters, their dangerous feats, and the outcomes of their conflicts—the stuff of which these classic tales are made. Further, the children think it is easy to listen to and tell stories, so important language skills can develop unself-consciously with the interest and pride they take in what they are doing," Thach notes.

In a trial run, teachers felt the units were successful with children and helped them reach the school's language and reading goals.

An advisory committee will oversee the program policies of the project, including the selection of materials and techniques. The committee is composed of Father Walter Ong, professor of

English and humanities in psychiatry, St. Louis University; Wayne Altree, chairman of the social studies department, Newton, Mass., Public Schools; Herbert Simons, chairman of the reading and language program, School of Education, University of California at Berkeley; George Pepe, associate professor of classics, Washington University, and Harriet Doss Willis, director of CEMREL's Urban Education Program.

The project is funded for 28 months by the National Endowment for the Humanities.

For more information write Emily Thach, project director, CEMREL, Inc., 3120 59th St., St. Louis, MO 63139.

Urban Conference Covers Secondary Schooling

"Alternative Secondary Programs: Perspectives for the 80's" is the theme of the third annual conference for urban educators sponsored by the Wisconsin R&D Center for Individualized Schooling. The national meeting is set for March 27-29, 1979, at the Marc Plaza Hotel in Milwaukee, and is co-sponsored by Milwaukee Public Schools.

For details, contact Marvin Fruth, Wisconsin R&D Center, 1025 W. Johnson St., Madison, WI 53706.

R&D Training

Program Gives R&D Personnel New Skills

A professional development program is now available to individuals involved in educational r&d.

The program features instructional packages, or modules, developed for flexible learner-directed use. The modules are organized into six series: planning; information/data collection and organization; communication skills; development; evaluation; and dissemination and marketing.

The program is designed to train individuals entering the profession and to offer continuing professional development activities to those already involved. It is appropriate for use in such settings as school district offices, state education agencies, educational laboratories, and university-based r&d centers.

The materials can be used to design a comprehensive training program, to focus on a cluster of skills in a series, or to acquire a particular subset of competencies. Thus the modules are designed to meet individual needs and to allow professionals to acquire skills in the context of their job functions.

Included in the program are diagnostic instruments as well as instruments for assessing the acquisition of particular skills or competencies. A user guide is also provided.

The modules are designed to allow professionals to acquire skills in the context of their job functions

Developed with support from the National Institute of Education by the Far West Laboratory for Educational Research and Development, the program is called the DD&E Training Program. A complete set of materials is priced at $115 (23 books); individual books are $5. For more detailed information write National Teaching Systems, Inc., 1137 Broadway, Seaside CA 93955.

Kit Acts as Evaluation Consultant

The recently published *Program Evaluation Kit* addresses topics of concern to people who face the task of evaluating a social or educational program. In fact, this package of eight books answers questions as though it were a consultant called in to help with an evaluation.

Each of the books deals with one topic of practical concern. An *Evaluator's Handbook* forms the nucleus of the *Kit*. Designed primarily for practitioners who have never before conducted an

evaluation of any size, the book contains step-by-step guidelines for planning and managing the evaluation. During this process, the evaluator reaches many decision points and must choose among various courses of action. At each of these junctures, the handbook sends the evaluator to one of the seven "how to" books that present information to consider in making the decision. The books then provide directions for following through on the decision.

The *Kit* was developed by the Center for the Study of Evaluation at the UCLA Graduate School of Education with support from the National Institute of Education. It has been field tested at more than 150 sites and used in university classes.

The price of the *Program Evaluation Kit* is $42.50. Each of the books can also be purchased separately. For more detailed information write Sage Publications, Inc., P.O. Box 5024, Beverly Hills, CA 90210.

Institutes Focus On Individualized Schooling

Two institutes to familiarize educators with materials and strategies for individualizing education are planned by the Wisconsin R&D Center for Individualized Schooling. One will be held in Utah in February or March 1979; the other is being planned for Madison, Wisconsin, during the summer of 1979. The Madison institute will deal with implementing instruction at both the elementary and secondary levels; the one in Utah will focus on only the elementary level.

Institutes run three to five days and require a registration fee of about $30. They are designed for principals, teachers, central office staff, college level teacher trainers, and others who might assist in implementing individualized schooling.

For details, contact Jim Heffernan, Wisconsin R&D Center, 1025 W. Johnson St., Madison, WI 53706.

Mini-List of Resources

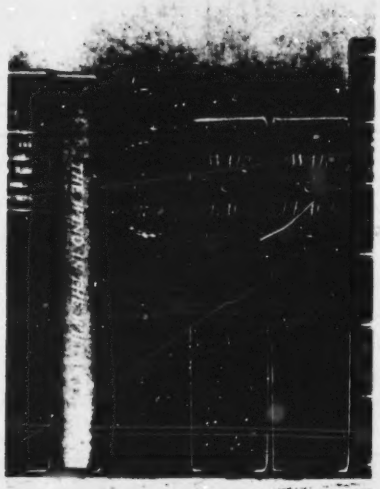
Organizations Offer Resources For Increasing Functional Literacy

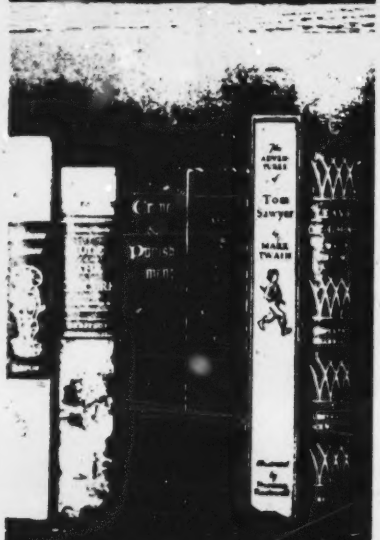
To help educators find information on selected topics, the Resource and Referral Service, part of the R&D Exchange school improvement effort, is producing a series of "mini-lists." Each list describes organizations and agencies able to provide assistance with particular educational problems.

In order to make this information more widely available, *Educational R&D Report* runs one mini-list in each issue. This issue features resources for increasing functional literacy—the ability to perform tasks necessary for participating in American society such as reading newspapers, filling out job application forms, and taking driver's license tests.

Adult Basic Literacy Educational Skills Text (ABLEST)
Lancaster-Lebanon Intermediate Unit 13
1110 Enterprise Rd.
East Petersburg, PA 17520
Contact: Sherry Royce
717/569-7331

ABLEST materials include five student booklets at below-fourth-grade reading level. They cover the coping skill areas of communications, money management, occupations, health, and community services. Each booklet is $1.50, plus postage. Three teacher manuals are available at $1.25 each: *English Second Language; Basic Reading;* and *Basic Education.* A bilingual version of the materials contains translations in Spanish and Vietnamese. An





examination set of five student booklets and three teacher manuals sells for $11, plus postage.

Adult Literacy Laboratory
Anchorage Community College
2533 Providence Ave.
Anchorage, AK 99504
Contact: Gretchen Bersch or Kathleen Lynch
904/279-6602, Ext. 329 or 358

The Alaska Literacy Laboratory has more than 50 publications for adults. Most are designed for native Alaskans. Those not Alaska-specific include: *What's Metric?*, a 140-page explanation of the metric system ($5); *Get it From the Wish Book*, a 44-page book about catalog ordering ($3.50); *Filing Income Tax Returns*, an explanation, updated annually, of how to complete a federal tax return ($2); and *Where Did All My Money Go?*, a 62-page book about banking and money management ($4). Reading levels are grades 5-8.

Adult Performance Level (APL) Project
University of Texas at Austin
Extension Building 202
Austin, TX 78712
Contact: Buddy Lyle
512/471-4623

The APL Project is currently testing and revising 41 curriculum modules on functional literacy. Other products include *Adult Functional Competency: A Summary* ($2); a 15-minute slide-tape presentation, *The APL Project: Functional Competency in the United States* ($50); *APL Scope and Sequence Charts* ($5); and an annotated bibliography of commercial and other materials for identifying APL objectives, *The ABC's in APL* ($5).

Clearinghouse for Adult Education and Lifelong Learning (ADELL)
Informatics, Inc.
6011 Executive Blvd.
Rockville, MD 20852
Contact: Gloria Silverman
Toll-free 800/638-6628
In Maryland 301/770-3000, Ext. 433

Clearinghouse ADELL promotes the coordination, dissemination, and use of adult education information resources. A free referral service links callers with appropriate state, regional, and national organizations. A catalog provides summary information on adult education demonstration projects funded under Sections 306 and 309 of the Federal Adult Education Act.

Clearinghouse for Applied Performance Testing (CAPT)
Northwest Regional Educational Laboratory
710 S.W. Second Ave.
Portland, OR 97204
Contact: Dean Nafziger, director
503/248-6946

CAPT has a collection of tests that can be obtained on a cost-reimbursement basis at 10¢ per page. Two reference documents are available free to aid users in their search for tests and other materials: *Annotated Bibliography on Applied Performance Testing* and *References Related to Applied Performance Testing*. In addition, CAPT has developed inservice training materials on introducing, creating, and evaluating such tests.

A bimonthly *CAPT Newsletter* is available free on request. The theme of the March 1978 issue was "CAPT Looks at the Assessment of Functional Literacy."

Detroit ESAA Pilot Project
Detroit Public Schools
5057 Woodward, Rm. 832
Detroit, MI 48202
Contact: Herbert Tabor
313/494-1386

The Detroit ESAA Pilot Project has developed 40 curriculum modules in the functional competency area. All materials were written in a competency-based education mode by teachers and administrators. Written at a sixth or seventh grade reading level, the modules cover such topics as insurance, budgeting, taxes, advertising, credit, consumer laws, map reading, and retaining a job. Materials include 40 student booklets and a teacher edition, all available at cost.

Human Resources Research Organization (HumRRO)
27857 Berwick Dr.
Carmel, CA 93923
Contact: Marsha Shearer
408/625-1347

HumRRO's Functional Literacy program consists of five learning modules, a teacher manual and answer key, a student practice text, and five skill proficiency tests. Written for the sixth grade reading level, the five modules are: Table of Contents, Textual Materials, Tables, Graphs, and Indexes. Cost per pupil is $3 for each module and $5 for the practice text. A placement test and skill tests for each module are $4.30 for each pad of 50 copies.

HumRRO has also developed a training program designed to produce a level of functional literacy appropriate to minimal reading requirements in six major job clusters. Publications relating to functional literacy include *Listening to Language and Looking at Language* (in press) and *Reading for Working: A Functional Literacy Anthology* (1975).

Information, Collection, Evaluation, and Dissemination Systems Project (ICEDS)
5350 University Ave.
San Diego, CA 92105
Contact: E M. Swengel or Frances Lee
714/582-3052

This project serves as clearinghouse for Adult Performance Level (APL) projects. Commercial materials were checked against the APL objectives and evaluated by teachers on a five-point scale as to readability and readiness for classroom use. A *Recommended List of APL-Type Materials for ABE/ESL Classes* includes approximately 150 materials that were rated four points or higher. The list and an occasional newsletter/journal, *Heartbeat,* are available free.

National Assessment of Educational Progress (NAEP)
1860 Lincoln St.
Suite 700
Denver, CO 80295
Contact: Jack Schmidt
Department of Field Services
303/861-4917

NAEP conducted surveys of the functional reading performance of 17-year-old students in 1971, 1974, and 1975. Results are contained in *Functional Literacy, Basic Reading Performance, Brief Summary and Highlights* ($2.10). A two-page free leaflet, "Functional Literacy—Basic Reading Performance," summarizes NAEP results and reports.

An assessment of basic life skills was conducted in 1977 with a selected group of 17-year-olds. Results are available only with the purchase of *The Basic Life Skills Kit.* The kit contains six NAEP

assessment booklets covering personal finance and consumer protection, health maintenance, interpersonal, family responsibility and career development skills. The price is $23.15 with survey results, or $17 for the booklets only.

National Multimedia Center for Adult Education and National Adult Education Clearinghouse (NMMC/NAEC)
Department of Adult Continuing Education
Montclair State College
Upper Montclair, NJ 07043
Contact: Fran Spinelli
201/893-4353 or 4318

A monthly *Adult Education Clearinghouse Newsletter* is available for $9 per year prepaid, $10 if billed. Bibliographies related to functional literacy include: *English as a Second Language* ($6), *Leisure Reading for Adults* ($8), *Consumer Education* ($8), and *Career Education* ($8). Search services are available of the nearly 10,000 publications and media products in the NMMC/NAEC holdings. The charge is $10 plus 10¢ per page for abstracts.

Northwest Regional Educational Laboratory (NWREL)
710 S.W. Second Ave.
Portland, OR 97204
Contact: Jane Evanson
503/248-6887

The NWREL Adult Consumer Education Project has developed 16 competency-based learning packages. These tested materials are designed to assist the consumer in gaining the competencies required for functional literacy. Topics include selecting housing, making and using a budget, choosing a bank, and comparison shopping. An instructor's guide is provided. The materials are expected to be available from McGraw-Hill in 1980.

Currently available from NWREL, Dept. K, Office of Marketing and Dissemination, is the 110-page *Tests of Functional Adult Literacy: An Evaluation of Currently Available Instruments* ($5.95). This publication provides information on 17 different tests designed for adults.

Other resources on this topic may be obtained by contacting the Resource and Referral Service at the National Center for Research in Vocational Education, Ohio State University, 1960 Kenny Rd., Columbus, OH 43210. The service is funded by the National Institute of Education.

Letters to the Editor

Editor:
Volume 1, Number 1 of *R&D Report* was most interesting and helpful. I wrote for more information from six or eight of the sources listed. The article, "Teachers Determine Success of Innovations" was especially perceptive and helpful. I have written for more information on these ideas. Thanks. P.S. Just received and read Volume 2. It's interesting too!
Cayce Scarborough, professor
School of Education
Auburn University, Alabama

Editor:
I received the Volume 1, Number 2 of *Educational R&D Report* and found some helpful information as well as a process of study in the first article we may adopt in a proposal.
Tsuguo Ikeda, executive director
Seattle Atlantic Street Center, Washington

Editor:
I recently saw Volume 1, Number 2 of *Educational R&D Report*. I was impressed with the publication and believe it will be of value in my professional work.
George Etheridge
Department of Curriculum and Instruction
Memphis State University, Tennessee

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